In the Claims:

1. (Currently amended) A computerized system for tracking and locating a source of ionizing radiation, the system comprising:

(a) at least one non-imaging sensor module comprising at least one first radiation detector and at least one second radiation detector, said at least one first radiation detector and at least one second radiation detector capable of receiving ionizing radiation from the radiation source and producing ~~an~~ output signals; and

(b) said CPU designed and configured to receive said output signals and ~~translate said output signal to directional information~~to use a comparison of the output signals from the at least one first radiation detector and the at least one second radiation detector to determine a plane in which the source resides.

2. (Original) The system of claim 1, wherein the source of radiation is integrally formed with or attached to a medical device.

3. (Original) The system of claim 1, wherein said at least one sensor module includes at least two sensor modules.

4. (Original) The system of claim 3, wherein said at least two sensor modules includes at least three sensor modules.

5. (Original) The system of claim 1, wherein at least one of said at least one sensor module further comprises a locomotion device, said locomotion device capable of imparting translational motion to said sensor module so that said sensor module is moved to a new location.

6. (Original) The system of claim 5, wherein said locomotion device is operable by a translational motion signal from said CPU.

7. (Original) The system of claim 1, additionally comprising:

(c) an imaging module, said imaging module capable of providing an image signal to said CPU, said CPU capable of translating said image signal to an image of a portion of the body of the subject.

8. (Original) The system of claim 1, further comprising a display device.

9. (Original) The system of claim 7, further comprising a display device.

10. (Currently amended) The system of claim 9, wherein the source of radiation is integrally formed with or attached to a medical device, and wherein said display device is capable of displaying said image of said portion of the body of the subject with a determined position of the medical device superimposed on said image of said portion of the body of the subject.

11. (Currently amended) The system of claim ~~1~~3, wherein said CPU receives at least two ~~of said~~ output signals each defining a plane in which said radiation source resides, and computes a ~~position of said radiation source based on said output signals,~~linear intersection of the two planes, upon which said radiation source is located.

12. (Currently amended) The system of claim ~~1~~4, wherein said CPU receives at least three ~~of said~~ output signals each defining a plane in which said radiation source resides, and computes a position of said radiation source ~~based on said at least three output signals~~by determining an intersection of the three planes.

13. (Currently amended) The system of claim 12, wherein said CPU is configured to compute~~s~~ said position repeatedly at predetermined intervals so that a position of said radiation source as a function of time may be plotted.

14. (Original) The system of claim 1, wherein said radiation source employs an isotope with a half life in the range of 6 to 18 months.

15. (Original) The system of claim 1, additionally comprising said radiation source capable of providing said radiation.

16. (Currently amended) The system of claim 1, wherein said ~~directional information is produced~~plane is determined when the source has an activity in the range of 0.01mCi to 0.5mCi.

17. (Withdrawn) A sensor for directionally locating an ionizing radiation source, the sensor comprising:

(a) at least one functional component; and

(b) a displacement mechanism which imparts angular sensitivity to the sensor by moving said at least one functional component.

18. (Withdrawn) A sensor according to claim 17, wherein said at least one functional component comprising at least one radiation detector, said at least one radiation detector capable of receiving radiation from the radiation source and producing an output signal;

wherein said displacement mechanism is capable of rotating said at least one radiation detector through a rotation angle so that said output signal varies with said rotation angle.

19. (Withdrawn) The sensor of claim 18, wherein said at least one radiation detector comprises at least one first radiation detector and at least one second radiation detector and said output signal comprises at least one first output signal from said at least one first radiation detector and at least one second output signal from said at least one second radiation detector.

20. (Withdrawn) The sensor of claim 19, additionally comprising at least one radiation shield installed at a fixed angle with respect to said at least one first radiation detector and said at least one second radiation detector so that a magnitude of said first output signal from said at least one first radiation detector and a

magnitude of said second output signal from said second radiation detector vary with said rotation angle.

21. (Withdrawn) A sensor according to claim 17, comprising:

(a) at least one first radiation detector and at least one second radiation detector, each of said at least one first radiation detector and at least one second radiation detector capable of receiving radiation from the radiation source and producing at least one first output signal from said at least one first radiation detector and at least one second output signal from said at least one second radiation detector; and

(b) at least one radiation shield, said radiation shield rotatable about an axis of shield rotation through an angle of shield rotation, so that a magnitude of said first output signal from said at least one first radiation detector and a magnitude of said second output signal from said second radiation detector each vary with said angle of shield rotation.

22. (Withdrawn) A sensor according to claim 20, wherein said at least one radiation shield comprises:

(i) a primary radiation shield located between said at least one first radiation detector and said at least one second radiation detector;

(ii) at least one first additional radiation shield deployed to interfere with incident radiation directed towards said at least one first radiation detector; and

(iii) at least one second additional radiation shield deployed to interfere with incident radiation directed towards said at least one second radiation detector.

23. (Withdrawn) The sensor according to claim 22, wherein said at least one first additional radiation shield and said at least one second additional radiation shield are each inclined towards said primary radiation shield.

24. (Withdrawn) A sensor according to claim 22, wherein said at least one first radiation detector and said at least one second radiation detector are organized in pairs, each pair having a first member and a second member and each radiation shield

of said primary and additional radiation shields is located between one of said first member and one of said second member of one of said pairs so that said output signal varies with said rotation angle.

25. (Withdrawn) The sensor of claim 17, additionally capable of revolving said at least a functional component about an axis of revolution through an angle of revolution.

26. (Currently amended) A method of determining a location of a radiation source, the method comprising:

(a) providing an ionizing radiation source;

(b) determining a ~~direction towards~~ first plane in which said radiation source resides;

(c) further determining at least a second ~~direction towards~~plane in which said radiation source resides;

(d) locate said radiation source by calculating an intersection of said first ~~direction~~ plane and said at least a second ~~direction~~plane.

27. (Currently amended) The method of claim 26, wherein said further determining at least a second ~~direction towards~~plane in which said radiation source resides includes determining at least a third ~~direction towards~~plane in which said radiation source resides and additionally comprising:

(e) calculating a point of intersection of said first ~~direction~~plane, said second ~~direction~~ plane and said at least a third ~~direction~~plane.

28 – 32. (Cancelled)

33. (Withdrawn) Use of an ionizing radiation source with an activity of 0.1 mCi or less as a target for non imaging localization or tracking.

34. (Currently amended) A system according to claim ~~1~~39, wherein the directional information comprises directional information on a center of mass of the source.

35. – 36. (Canceled)

37. (New) A system according to claim 1, comprising a displacement mechanism which produces rotation of at least a portion of the sensor module, or translational motion, or both, controlled by the CPU or the sensor module in response to radiation received, to track the radiation source.

38. (New) A system according to claim 37, wherein the displacement mechanism tracks the radiation source by changing the location of boundaries of detection within which the source may be more accurately located by the system than outside the boundaries, to keep the source within the boundaries of detection.

39. (New) A system according to claim 1, wherein using a comparison of the output signals to determine a plane in which the source resides comprises translating the output signals to directional information concerning the source, and expressing the directional information as a plane in which the source resides.

40. (New) A system according to claim 4, wherein said at least three sensor modules includes at least four sensor modules, and said CPU receives at least four output signals each defining a plane in which said radiation source resides, and solves a resulting overdetermined set of equations to find a likely position of said radiation source, taking into account an error defined by a Euclidean distance between each plane and the position.